



Science Notes

MDC Resource Science

Caution—Convenience Sample Ahead!



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Information Needs: MDC managers and decision makers often need information on what “the public” thinks about a resource management issue—from how users like a new trail or exhibit to how the state should manage the deer population. For any public survey, we must identify the target audience and how results will be used.

Two Horse Rider Surveys

In 2008, MDC developed a printed survey asking horse riders how often they rode on public land, where they rode, how much they spent, and additional questions about their attitudes regarding equestrian trails. The survey was printed in two versions. One was sent to a randomly selected sample of riders, the other was a convenience sample distributed to saddle clubs, trail rides, and other interested parties. The Random Sample was to provide unbiased statewide information, while the Convenience Sample was to meet the desire of the riding public to provide input.

A convenience sample is much more likely to be completed by avid users, who have more opportunities to see it, and by users with stronger opinions about the issue addressed, who are more motivated. A random sample should statistically represent the whole population from which the sample is drawn, in this case all Missouri landowners with horses. With a convenience sample, it may never be known how many people received it, only how many were sent in. By contrast, with a well-constructed random sample, which includes a database of names and addresses and numbered surveys, the response rate is known.

Horse Rider Results

For the Random Survey the response rate was 48.1% (2,286/4,750). Over 1,000 Convenience Surveys were sent by request to saddle clubs, trail riders, and individuals and 510 replies were completed and returned.

There were 13 numerical questions on the surveys (e.g., “How many times did you ride last year?”) and 78 “text” questions (e.g., “Mountain bikers cause problems for horses. Do you agree or disagree?”). Of

these 91 items, responses for 50 are statistically different between the Convenience and Random surveys showing the two populations are different.

More importantly, some of those differences were substantive; they really mattered (See Fig. 1)! Using the random sample, we estimated that Missouri horse owners rode public trails about 180,000 times in 2007. Basing that estimate on the average number of times ridden by the convenience sample riders would have yielded a very different (higher) number. Basing a decision about a campground on the convenience sample versus the random sample also would yield very different decisions.

Question	Convenience	Random
How many times did you ride on public lands in 2007?	35.8	17.2
How many times did you ride the 1 st [favorite] area?	23.9	10.2
How long was your average trip to the 1 st area?	5.8	3.0
How many times did you ride the 2 nd area?	9.1	5.1
How long was your average trip to the 2 nd area?	3.3	2.3
Number/length of trails on area is “very important”.	69.9%	49.4%
Availability of camping is “very important”.	45.9%	35.8%
Single track is the ideal trail width.	29.2%	16.9%
Strongly agree that riders obey trail rules.	42.6%	29.6%
Would be willing to volunteer.	45.8%	29.7%
Member of a saddle club or other horse group.	66.0%	33.0%

Fig. 1. Survey questions with large differences between Convenience and Random surveys

Lessons Learned

Relying on the convenience sample would have given a very inaccurate description of the public that was really of interest to MDC—all Missouri riders. This is not to say convenience samples are always wrong. Sometimes we may only need to know the opinions of the most avid or engaged constituents. But it is important to remember that a convenience sample, whether comments at a public meeting or a formal questionnaire, only represents the views of those individuals who answered and should not be expanded to “the public”. Whether you are considering conducting your own survey about a local issue or reading a report with survey results, make sure you understand the sample frame!

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